

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-18. (Canceled)

19. (new) A system for identifying a path for a multiple point communication service within a network that includes a plurality of ingress nodes and a plurality of egress nodes and a plurality of links connecting to the ingress nodes and the egress nodes, the system comprising:

means for setting an objective function for minimizing a link load in the network;

means for setting a first constraint expression for deriving the link load;

means for generating a second constraint expression for selecting a route for data traffic received by the ingress nodes;

means for generating a third constraint expression for calculating a link band for the links based on the data traffic received by the ingress nodes;

means for generating a fourth constraint expression to assure that a link capacity limit associated with the links is not exceeded; and

means for identifying a path for the multiple point communication service based on the objective function and the first, second, third, and fourth constraint expressions.

20. (new) The system of claim 19, wherein the means for setting the objective

function, the means for setting the first constraint expression, the means for generating the second constraint expression, the means for generating the third constraint expression, and the means for generating the fourth constraint expression operate in parallel.

21. (new) The system of claim 19, wherein input data rates are associated with the ingress nodes and output data rates are associated with the egress nodes, the multiple point communication service permitting an arbitrary data rate within a range based on the input data rates and the output data rates.

22. (new) A method for identifying a path for a multiple point communication service within a network that includes a plurality of ingress nodes and a plurality of egress nodes and a plurality of links connecting to the ingress nodes and the egress nodes, the system comprising:

- setting an objective function for minimizing a link load in the network;
- setting a first constraint expression for deriving the link load;
- generating a second constraint expression for selecting a route for data traffic received by the ingress nodes;
- generating a third constraint expression for calculating a link band for the links based on the data traffic received by the ingress nodes;
- generating a fourth constraint expression to assure that a link capacity limit associated with the links is not exceeded; and
- identifying a path for the multiple point communication service based on the objective

function and the first, second, third, and fourth constraint expressions.

23. (new) The method of claim 22, wherein the setting the objective function, the setting the first constraint expression, the generating the second constraint expression, the generating the third constraint expression, and the generating the fourth constraint expression are performed in parallel.

24. (new) The method of claim 22, wherein input data rates are associated with the ingress nodes and output data rates are associated with the egress nodes, the multiple point communication service permitting an arbitrary data rate within a range based on the input data rates and the output data rates.

25. (new) A system for identifying a path for a multiple point communication service within a network that includes a plurality of ingress nodes and a plurality of egress nodes and a plurality of links connecting to the ingress nodes and the egress nodes, the system comprising:  
an optimization reference generator to:

set an objective function for minimizing a link load in the network, and

set a first constraint expression for deriving the link load;

a route selecting condition generator to generate a second constraint expression for selecting a route for data traffic received by the ingress nodes;

a link capacity calculating condition generator to generate a third constraint expression for calculating a link band for the links based on the data traffic received by the ingress nodes;

a link including condition generator to generate a fourth constraint expression to assure that a link capacity limit associated with the links is not exceeded; and

an optimizer to identify a path for the multiple point communication service based on the objective function and the first, second, third, and fourth constraint expressions.

26. (new) The system of claim 25, wherein the optimization reference generator, the route selecting condition generator, the link capacity calculating condition generator, and the link including condition generator operate in parallel.

27. (new) The system of claim 25, wherein input data rates are associated with the ingress nodes and output data rates are associated with the egress nodes, the multiple point communication service permitting an arbitrary data rate within a range based on the input data rates and the output data rates.